

Title (en)
Dynamic random access memory cell.

Title (de)
Dynamische Speicherzelle mit wahlfreiem Zugriff.

Title (fr)
Cellule de mémoire dynamique à accès aléatoire.

Publication
EP 0508760 A1 19921014 (EN)

Application
EP 92303134 A 19920408

Priority
US 68214991 A 19910408

Abstract (en)
A dynamic random access memory cell includes a metal capacitor above an access transistor. Tungsten plugs are used to contact an active area of a device substrate. Tantalum is used for the charge storage plate of the capacitor, and oxidized to provide the capacitor dielectric. A tungsten reference plate can be deposited over the charge storage plate and dielectric to provide a common reference plate for all memory cells on the device. The tantalum oxide dielectric is formed on sidewalls of the charge storage plate, so that the capacitance of the capacitor can be increased by making the charge storage plate taller. This design allows overall cell size to shrink while maintaining adequate charge storage capacitance.
<IMAGE>

IPC 1-7
H01L 27/108

IPC 8 full level
H01L 21/822 (2006.01); **H01L 21/8242** (2006.01); **H01L 21/8246** (2006.01); **H01L 27/04** (2006.01); **H01L 27/10** (2006.01); **H01L 27/105** (2006.01); **H01L 27/108** (2006.01)

CPC (source: EP)
H10B 12/31 (2023.02)

Citation (search report)

- [A] EP 0386947 A2 19900912 - SGS THOMSON MICROELECTRONICS [US]
- [A] DE 4028488 A1 19910321 - TOSHIBA KAWASAKI KK [JP]
- [X] PATENT ABSTRACTS OF JAPAN vol. 14, no. 401 (E-971)30 August 1990 & JP-A-2 151 060 (HITACHI LTD) 11 June 1990
- [A] PATENT ABSTRACTS OF JAPAN vol. 14, no. 387 (E-967)21 August 1990 & JP-A-2 142 175 (HITACHI LTD) 31 May 1990
- [A] PATENT ABSTRACTS OF JAPAN vol. 15, no. 94 (E-1041)6 March 1991 & JP-A-2 304 970 (NEC CORP) 18 December 1990
- [A] IBM TECHNICAL DISCLOSURE BULLETIN. vol. 32, no. 9 B, February 1990, NEW YORK US pages 378 - 381; 'HIGH-DENSITY, FOLDED DRAM CELL'
- [A] PATENT ABSTRACTS OF JAPAN vol. 14, no. 168 (E-912)(4111) 30 March 1990 & JP-A-2 023 657 (SHARP CORP) 25 January 1990
- [A] PATENT ABSTRACTS OF JAPAN vol. 11, no. 288 (E-542)(2735) 17 September 1987 & JP-A-62 086 853 (FUJITSU LTD) 21 April 1987

Cited by
DE19549116C2; DE19639899A1; DE19639899B4; GB2341000A; GB2341000B; DE4327813A1; DE4327813C2

Designated contracting state (EPC)
DE FR GB IT

DOCDB simple family (publication)
EP 0508760 A1 19921014; JP H05136342 A 19930601

DOCDB simple family (application)
EP 92303134 A 19920408; JP 8684292 A 19920408